

REMARKS

Claims 18, 19 and 22 have been rejected under 35 USC 102(b) as being anticipated by GB 1 477 825 (BASF), or Rametsteiner, or Stastny et al, or JP 06-007220 (Shinetsu). Claims 16, 17, 20 and 21 have been rejected under 35 USC 103(a) as being unpatentable over BASF, or Rametsteiner, or Stastny et al, or Shinetsu, alone or in combination with Tojo et al. Applicants respectfully traverse these grounds of rejection and urge reconsideration in light of the following comments.

As explained previously, the instant invention is directed to a cellular rubber composition which can be used in various applications, such as a cosmetic sponge puff. The cellular rubber material of the present invention is prepared by heating a rubber composition containing 100 parts by weight of a polymer which contains 30 to 100% by mass of a chlorinated polyethylene having a chlorine content of 10 to 35% by mass and a Mooney viscosity at 100° ML₍₁₊₄₎ of 30 to 100, 1 to 30 parts by mass of an organic blowing agent having a decomposition temperature T₁ of 100 to 170°C and 0.1 to 10 parts by mass of an organic peroxide having a one minute-half life temperature T₂ of 100 to 170°C, wherein $-20^{\circ}\text{C} \leq (T_1 - T_2) \leq +30^{\circ}\text{C}$. Another embodiment of the present invention is directed to a cellular rubber material which is prepared by extrusion-molding into a predetermined shape, heating, cross-linking and foaming the rubber composition discussed above. A third embodiment of the present invention is directed to a method for preparing the above-described cellular rubber material.

The present invention enables the manufacture of sponge puffs without an excessive number of steps, including post-handling, and the elimination of molding. In order to get the superior properties associated with the presently claimed cellular rubber composition, the rubber composition must contain (A) 100 parts by mass of a polymer which contains 30

to 100% by mass of a chlorinated polyethylene having a chlorine content of 10 to 35% by mass and a Mooney viscosity at 100° ML₍₁₊₄₎ of 30 to 100, (B) 1 to 30 parts by mass of an organic blowing agent having a decomposition temperature T₁ of 100 to 170°C, and (C) 0.1 to 10 parts by mass of an organic peroxide having a one minute-half life temperature T₂ of 100 to 170°C, wherein $-20^{\circ}\text{C} \leq (T_1 - T_2) \leq +30^{\circ}\text{C}$. It is respectfully submitted that the prior art cited by the Examiner does not disclose the presently claimed invention.

BASF discloses a process for the manufacture of a flexible foam of a thermoplastic olefin polymer by heating a mixture of an ethylene polymer and/or a chlorinated polyethylene, an organic peroxide as a cross-linking agent and an expanding agent in a confined gas-type zone in which there is virtually no gas space, to soften the polymer and decompose the expanding and cross-linking agents, to generate a pressure within the zone, releasing the pressure and allowing the expandable mixture to foam. The chlorinated polyethylene can have a chlorine content of from 40 to 45% by weight but there is no disclosure of the Mooney viscosity of the chlorinated polyethylene and the one minute-half life temperature of the organic peroxide cross-linking agent.

It is essential in the present invention that the chlorinated polyethylene have a Mooney viscosity of from 30 to 100 because, as described in the present specification, if the Mooney viscosity is less than 30, it may result in rough foams during the foaming process while if the Mooney viscosity is above 100, insufficient foaming or cracking during the foaming and the cross-linking processes may occur. These problems arise during the vulcanization of the cellular rubber material in a heating and cutting oven and not during press-molding. Since BASF is not aware of these problems and does not specifically disclose the composition as required by the present claims, it is respectfully submitted that the presently claimed invention clearly is patentably distinguishable thereover.

Claims 18, 19 and 22 are method claims. These method claims require a step of extrusion-molding a rubber composition. The BASF patent refers to a "gas-tight zone" and thereby uses molds during the process and does not disclose a step of extrusion molding. The Examiner states that since Claim 18 is in the form of a Jepson claim, the preamble can be ignored as it is admitted prior art and the only requirement is the Examiner find the claimed composition. Although the preamble in a Jepson claim is admitted prior art, the preamble still sets forth the context of what constitutes the improvement over the prior art. The method steps in the preamble cannot be ignored by the Examiner. Since the preamble of the present method claims require a step of extrusion-molding, the BASF reference, the Shinetsu reference and the Stastny reference, which all use molds, do not disclose the method claims of the present invention.

The Rametsteiner reference discloses the manufacture of bodies of foamed plastic material in which a polymeric synthetic resin base material is mixed with a cross-linking agent, a foaming agent and at least one additional additive. The foaming materials and the specific numeric values of the product of Rametsteiner are different from that of the present invention. The present invention uses one type of chlorinated polyethylene, an organic blowing agent and an organic peroxide while the product of Rametsteiner uses two types of linear chlorinated polyethylene, a heat-stabilizing agent, a cross-linking agent and a foaming agent. Although this reference does disclose the use of an extruder, the product formed through the extrusion is different and the materials and physical properties thereof are also different. As such, it is respectfully submitted that the presently claimed invention clearly is patentably distinguishable over this reference.

The Shinetsu reference discloses a puff comprising a composition in which 100 parts by weight of a chlorinated polyethylene is mixed with a stabilizer in an amount of 0.5 to 50 parts by weight, an organic foaming agent in an amount of

0.5 to 20 parts by weight and an organic peroxide in an amount of 0.5 to 10 parts by weight. This reference has no disclosure with respect to the chlorine content and the Mooney viscosity of the chlorinated polyethylene. As discussed previously, the puff of this reference is produced using a press-mold for vulcanization and foaming as described in paragraph [0019] of the specification thereof. This means that this cosmetic sponge puff is provided to consumers at a higher price than compared to the ones of the present invention since the production cost of Shinetsu is higher than that of the present invention. As discussed on page 2, lines 21 and 22, of the original specification, the present invention was arrived at in order to overcome the disadvantages associated with the cosmetic sponge puff of Shinetsu. As such, it is respectfully submitted that the presently claimed invention clearly is distinguishable thereover.

Tojo et al discloses foamed vulcanized rubber articles which are prepared by vulcanizing a vulcanizable and foamable molded product made of a chlorinated ethylene. Although both blowing and cross-linking agents are disclosed as being used in the formation of the foamed vulcanized rubber articles, like the previously discussed references, this reference has no disclosure with respect to the decomposition temperature of the organic blowing agent, the one minute-half life temperature of the organic peroxide cross-linking agent and the relationship between the decomposition temperature of the organic blowing agent and the one minute-half life temperature of the organic peroxide cross-linking agent. Therefore, Tojo et al, either singly or in combination with the previously discussed references, does not present a showing of prima facie obviousness under 35 USC 103(a) with respect to the presently claimed invention.

Matsumoto et al discloses an open-cell foam made of a cross-linked polyolefin which contains a blowing agent and a cross-linking agent. This reference has no disclosure with

respect to the polyolefin being a chlorinated polyolefin so this reference has no disclosure regarding the chlorine content, the Mooney viscosity of the chlorinated polyethylene, the decomposition temperature of the blowing agent, the one minute-half life temperature of the cross-linking agent and the required relationship between the decomposition temperature of the organic blowing agent and the one minute-half life temperature of the organic peroxide cross-linking agent as required by the present claims. Therefore, it is respectfully submitted that the presently claimed invention is patentably distinguishable over Masumoto et al in combination with any and all of the previously discussed references.

As discussed previously, there is objective evidence contained in the present specification which is more than sufficient to rebut any showing of prima facie obviousness under 35 USC 103(a). Pages 12-14 of the present specification present Examples and Comparative Examples in which sponge puffs are prepared according to the present invention and comparative sponge puffs are prepared outside of the scope of the present claims. The results in Tables 3 and 4 of the present specification illustrate that the sponge puffs made according to the Comparative Examples had inferior properties. This is clearly unexpected in light of the prior art cited by the Examiner and establishes the patentability of the presently claimed invention thereover. Once again Applicants wish to emphasize that the limitations contained in the preamble of a Jepson claim must be considered during the evaluation of the patentability of the claim although they are admitted prior art as they provide the context in which the evaluation is to be performed.

Favorable consideration of the present application is respectfully solicited.

Respectfully submitted,


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